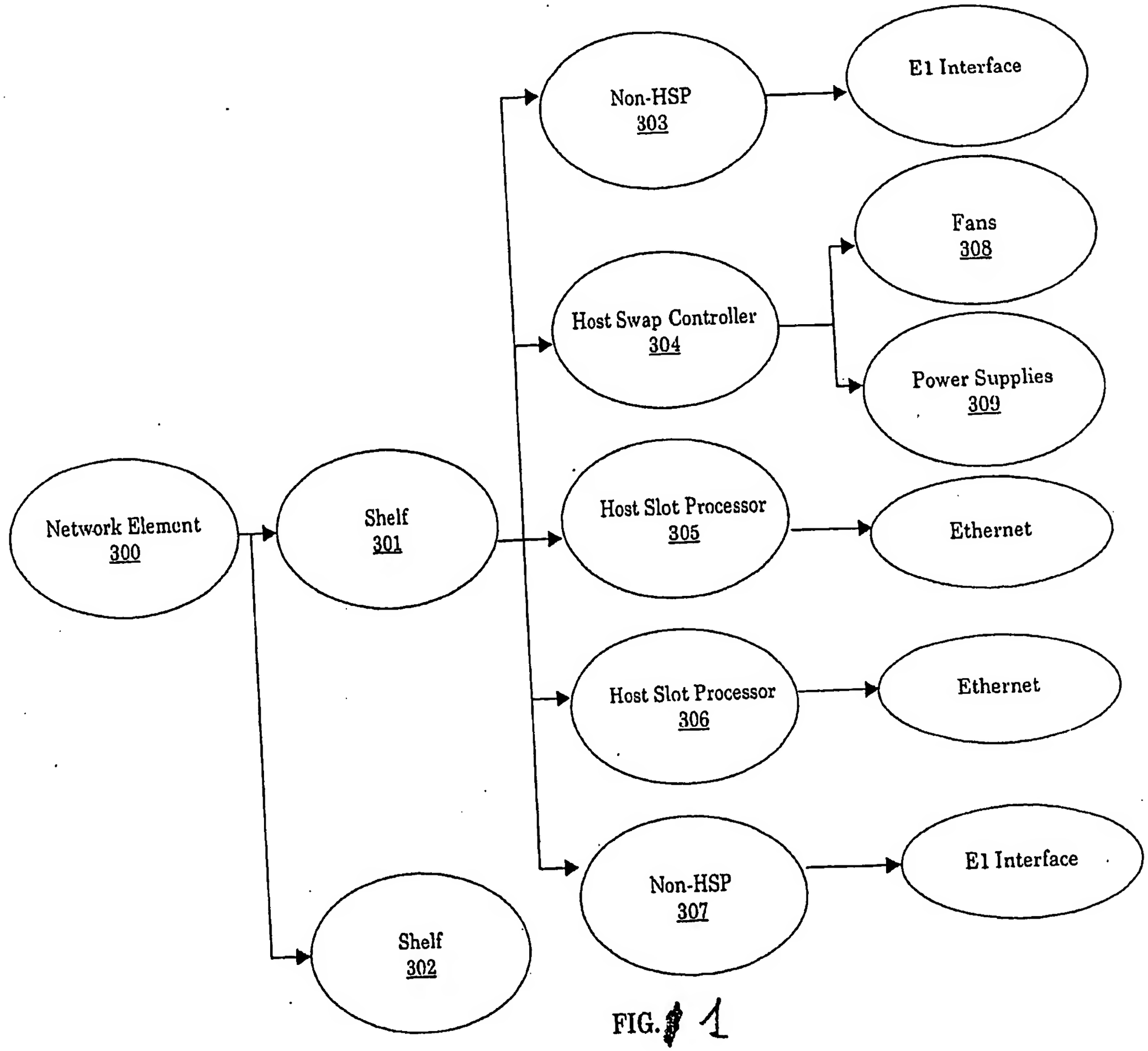

Network Element
300
Shelf
301
Shelf
302
Non-HSP
303
Host Swap Controller
304
Host Slot Processor
305
Host Slot Processor
306
Non-HSP
307
Fans
308
Power Supplies
309
E1 Interface
Ethernet
Ethernet
E1 Interface

FIG. 1

7185

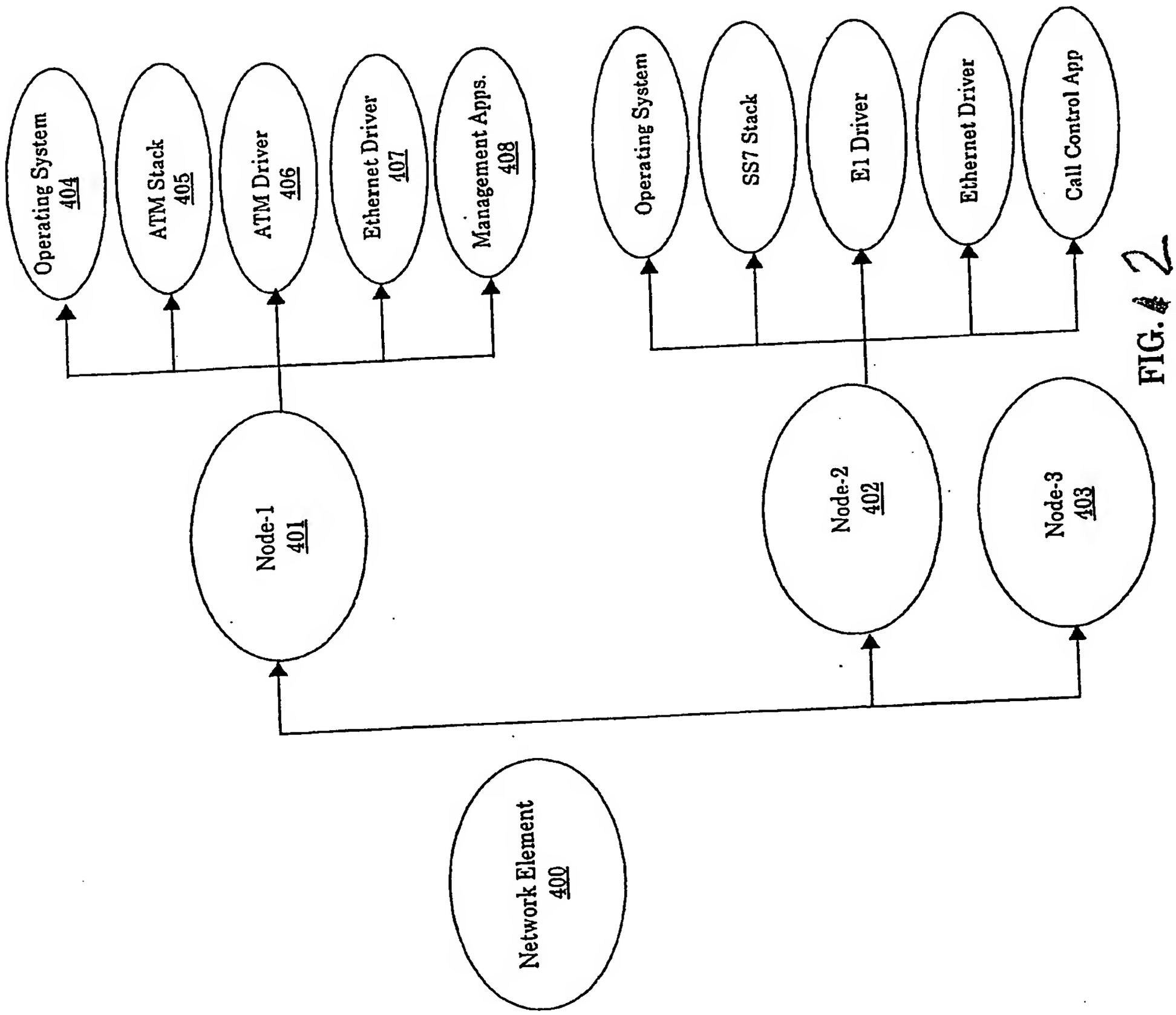

Network Element
400
Node-1
401
Operating System
404
ATM Stack
405
ATM Driver
406
Ethernet Driver
407
Management Apps.
408
Node-2
402
Operating System
SS7 Stack
E1 Driver
Ethernet Driver
Call Control App
Node-3
403

FIG. 4

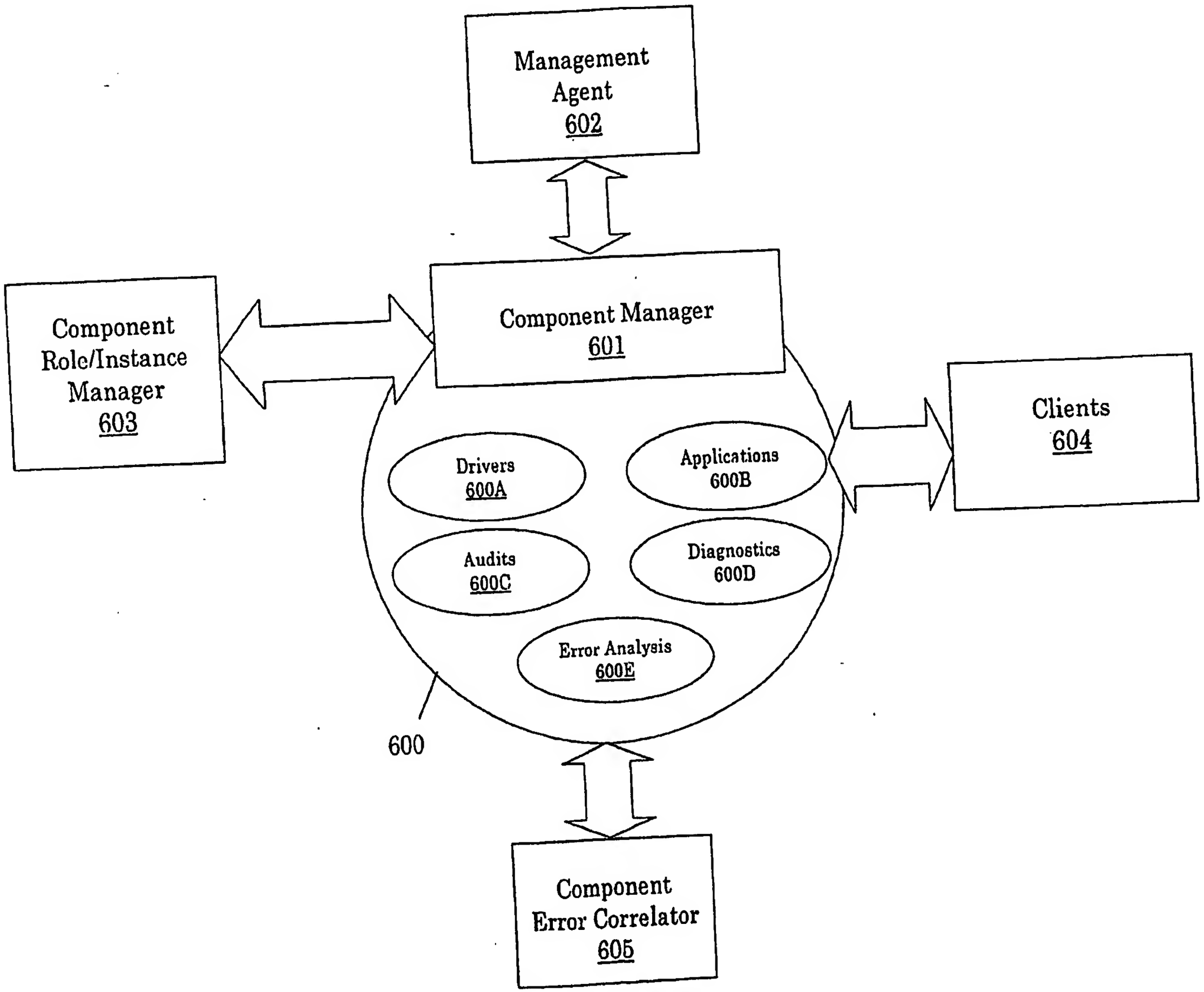

Management
Agent
602
Component
Role/Instance
Manager
603
Component Manager
601
Clients
604
Drivers
600A
Applications
600B
Audits
600C
Diagnostics
600D
Error Analysis
600E
600
Component
Error Correlator
605

FIG. 3

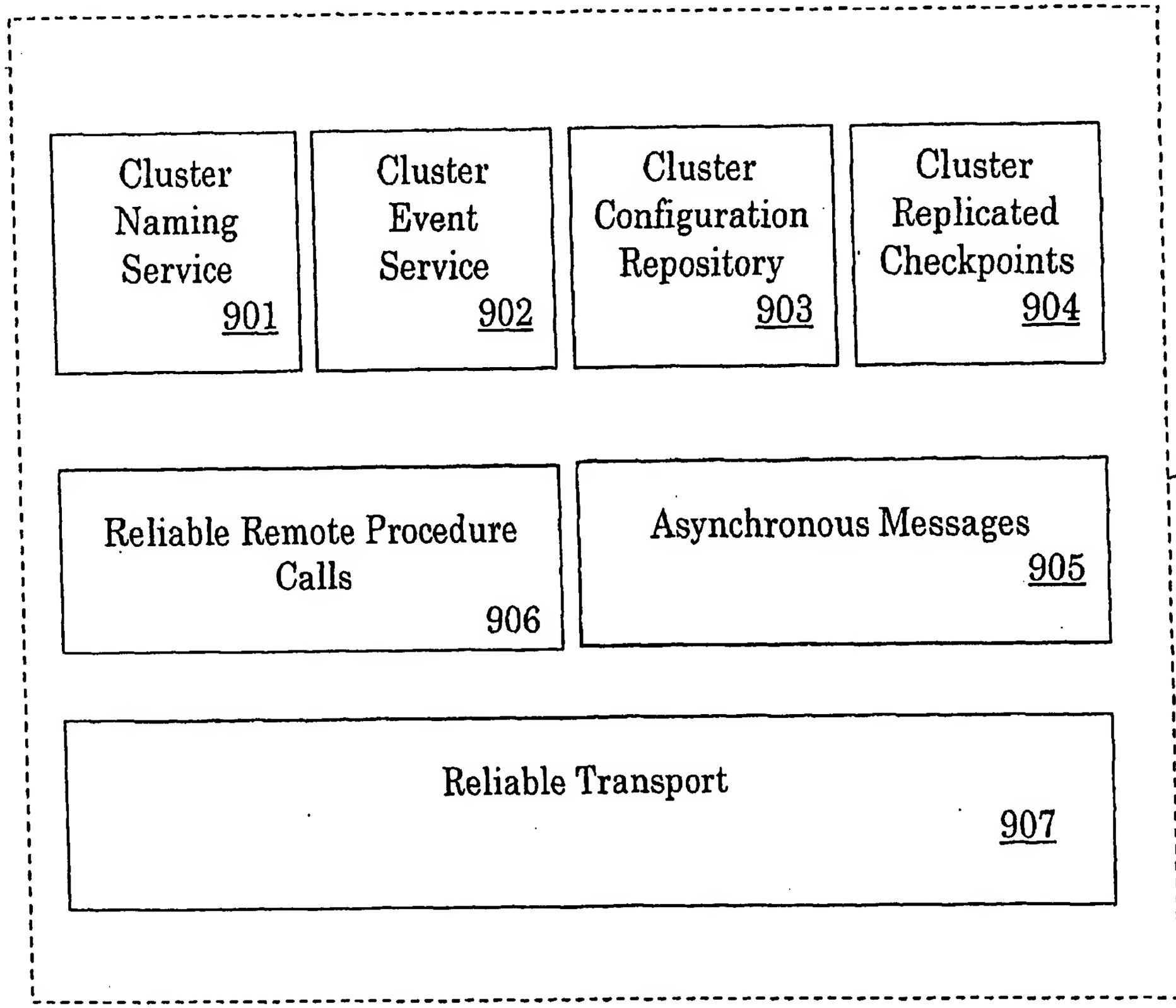

Cluster Naming Service 901
Cluster Event Service 902
Cluster Configuration Repository 903
Cluster Replicated Checkpoints 904
Reliable Remote Procedure Calls 906
Asynchronous Messages 905
Reliable Transport 907
900

FIG. 4

H & S

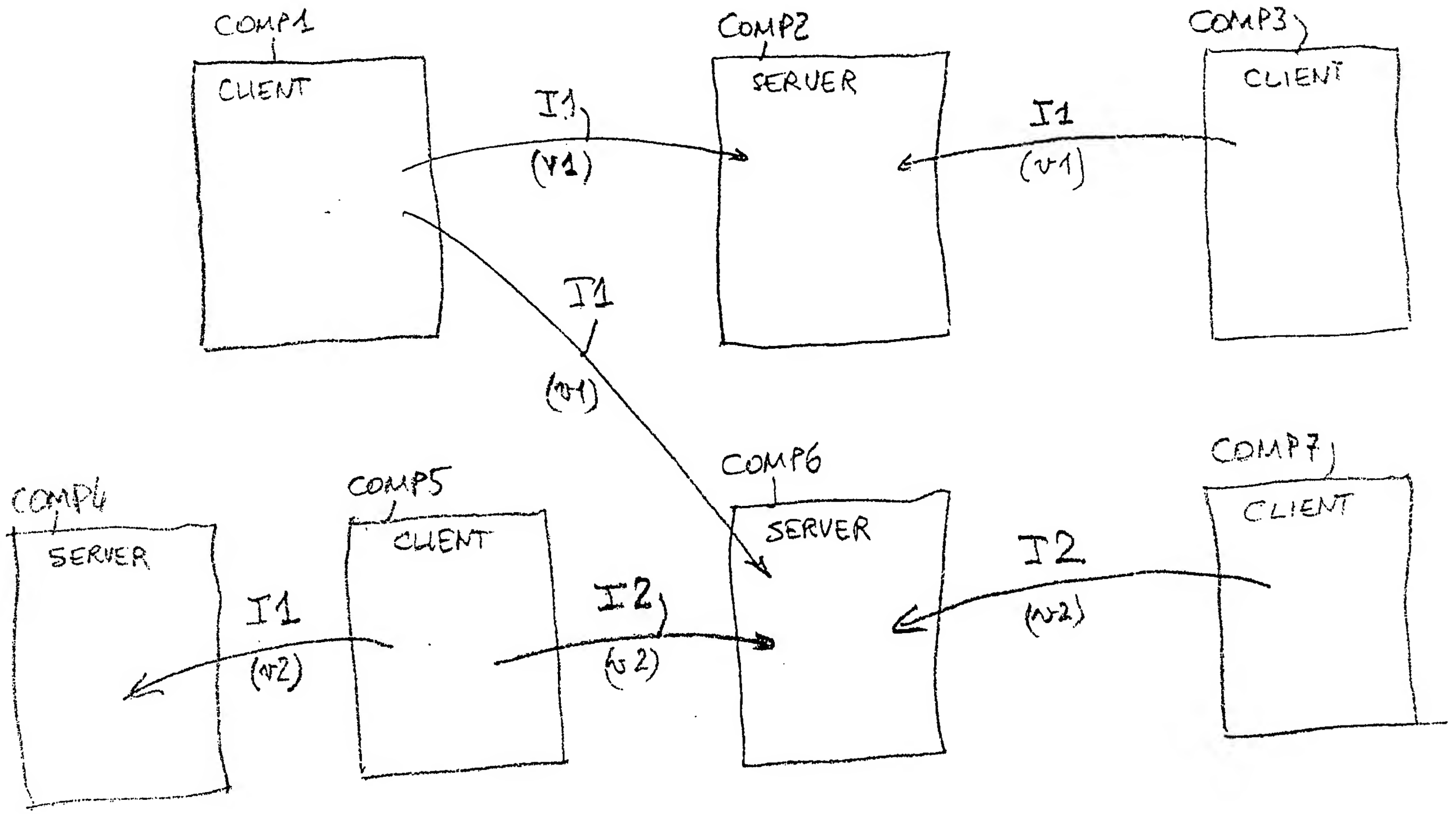

COMP1
CLIENT
I1
(V1)
COMP2
SERVER
I1
(V1)
COMP3
CLIENT
I1
(V1)
COMP4
SERVER
I1
(V2)
COMP5
CLIENT
I2
(V2)
COMP6
SERVER
I2
(V2)
COMP7
CLIENT

FIG 5

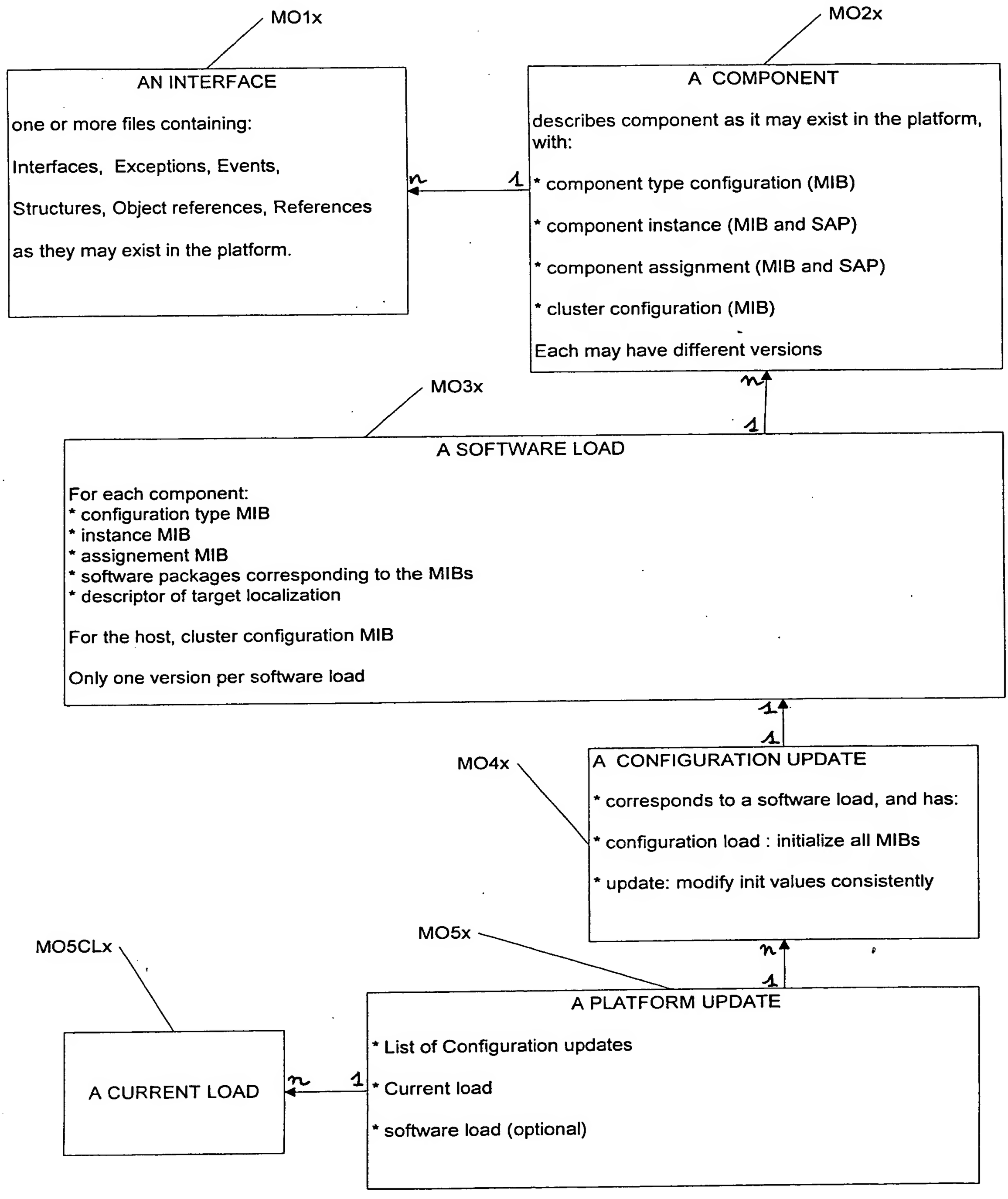

MO1x
AN INTERFACE
one or more files containing:
Interfaces, Exceptions, Events,
Structures, Object references, References
as they may exist in the platform.
n
1
MO2x
A COMPONENT
describes component as it may exist in the platform, with:
* component type configuration (MIB)
* component instance (MIB and SAP)
* component assignment (MIB and SAP)
* cluster configuration (MIB)
Each may have different versions
n
1
MO3x
A SOFTWARE LOAD
For each component:
* configuration type MIB
* instance MIB
* assignement MIB
* software packages corresponding to the MIBs
* descriptor of target localization
For the host, cluster configuration MIB
Only one version per software load
1
1
MO4x
A CONFIGURATION UPDATE
* corresponds to a software load, and has:
* configuration load : initialize all MIBs
* update: modify init values consistently
n
1
MO5x
A PLATFORM UPDATE
* List of Configuration updates
* Current load
* software load (optional)
n
1
MO5CLx
A CURRENT LOAD

FIGURE 6

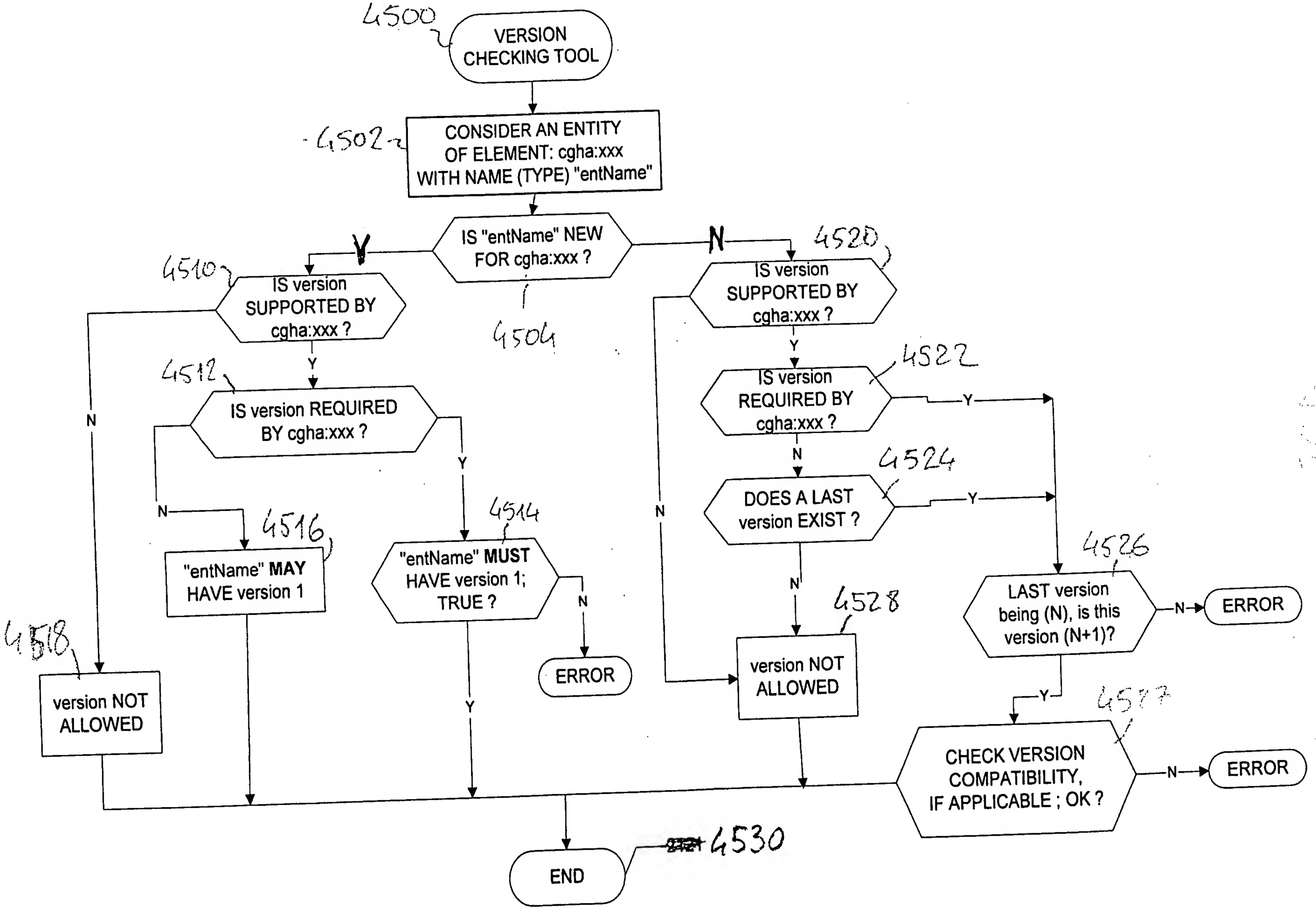

4500
VERSION CHECKING TOOL
4502
CONSIDER AN ENTITY OF ELEMENT: cgha:xxx WITH NAME (TYPE) "entName"
IS "entName" NEW FOR cgha:xxx ?
Y
N
4504
4510
IS version SUPPORTED BY cgha:xxx ?
4512
IS version REQUIRED BY cgha:xxx ?
N
Y
4516
"entName" MAY HAVE version 1
4514
"entName" MUST HAVE version 1; TRUE ?
N
ERROR
Y
4518
version NOT ALLOWED
4520
IS version SUPPORTED BY cgha:xxx ?
Y
4522
IS version REQUIRED BY cgha:xxx ?
Y
N
4524
DOES A LAST version EXIST ?
Y
N
4526
LAST version being (N), is this version (N+1)?
N
ERROR
Y
4528
version NOT ALLOWED
4527
CHECK VERSION COMPATIBILITY, IF APPLICABLE ; OK ?
N
ERROR
4530
END

FIG 7

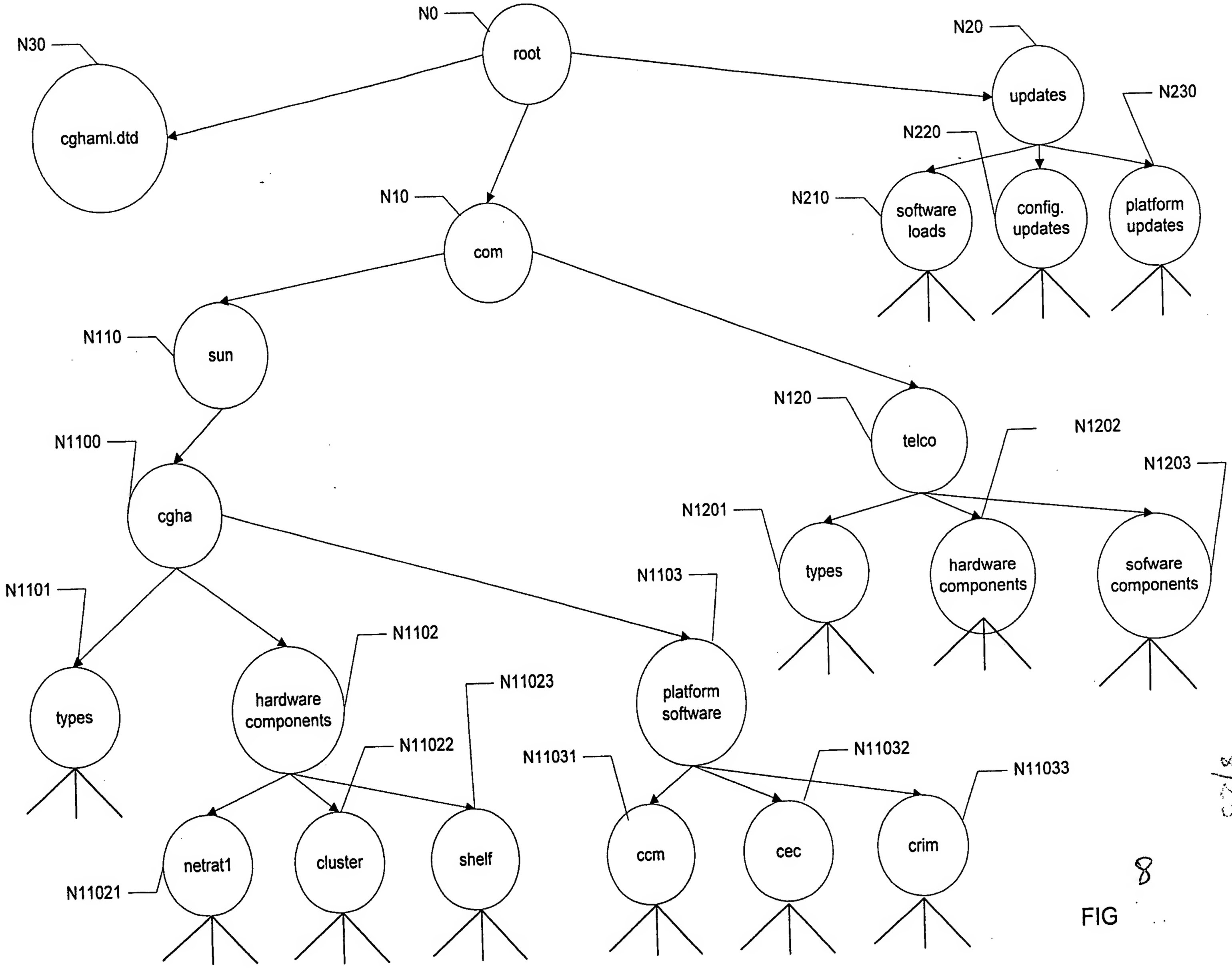

N0
root
N30
cghaml.dtd
N20
updates
N230
N220
N210
software loads
config. updates
platform updates
N10
com
N110
sun
N120
telco
N1202
N1203
N1201
types
hardware components
sofware components
N1100
cgha
N1101
N1103
N1102
N11023
types
hardware components
platform software
N11022
N11031
N11032
N11033
N11021
netrat1
cluster
shelf
ccm
cec
crim

FIG 8

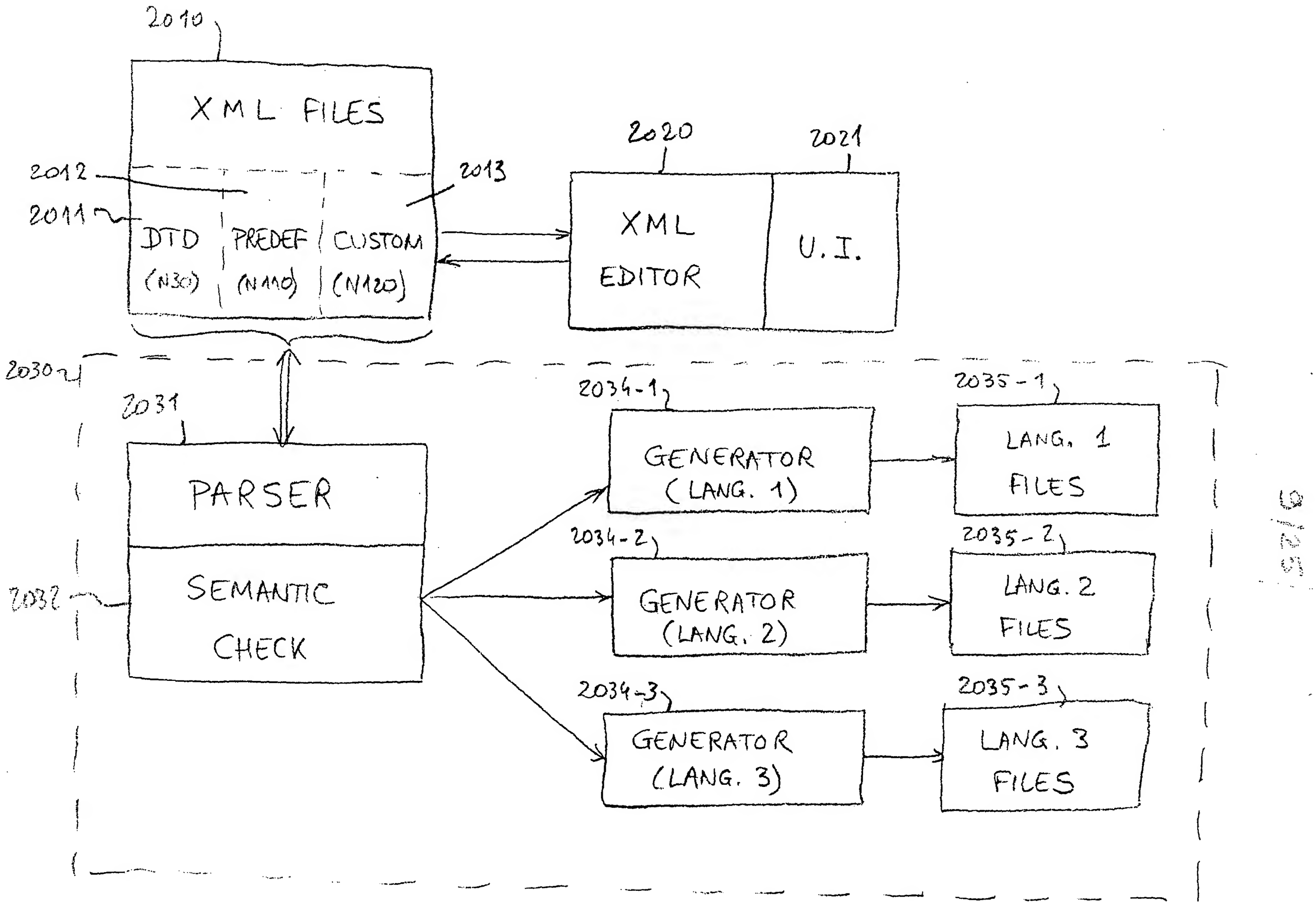

2010
XML FILES
2012
2011
2013
DTD
(N30)
PREDEF
(N110)
CUSTOM
(N120)
2020
2021
XML
EDITOR
U.I.
2030
2031
PARSER
2032
SEMANTIC
CHECK
2034-1
GENERATOR
(LANG. 1)
2034-2
GENERATOR
(LANG. 2)
2034-3
GENERATOR
(LANG. 3)
2035-1
LANG. 1
FILES
2035-2
LANG. 2
FILES
2035-3
LANG. 3
FILES

FIG. 9

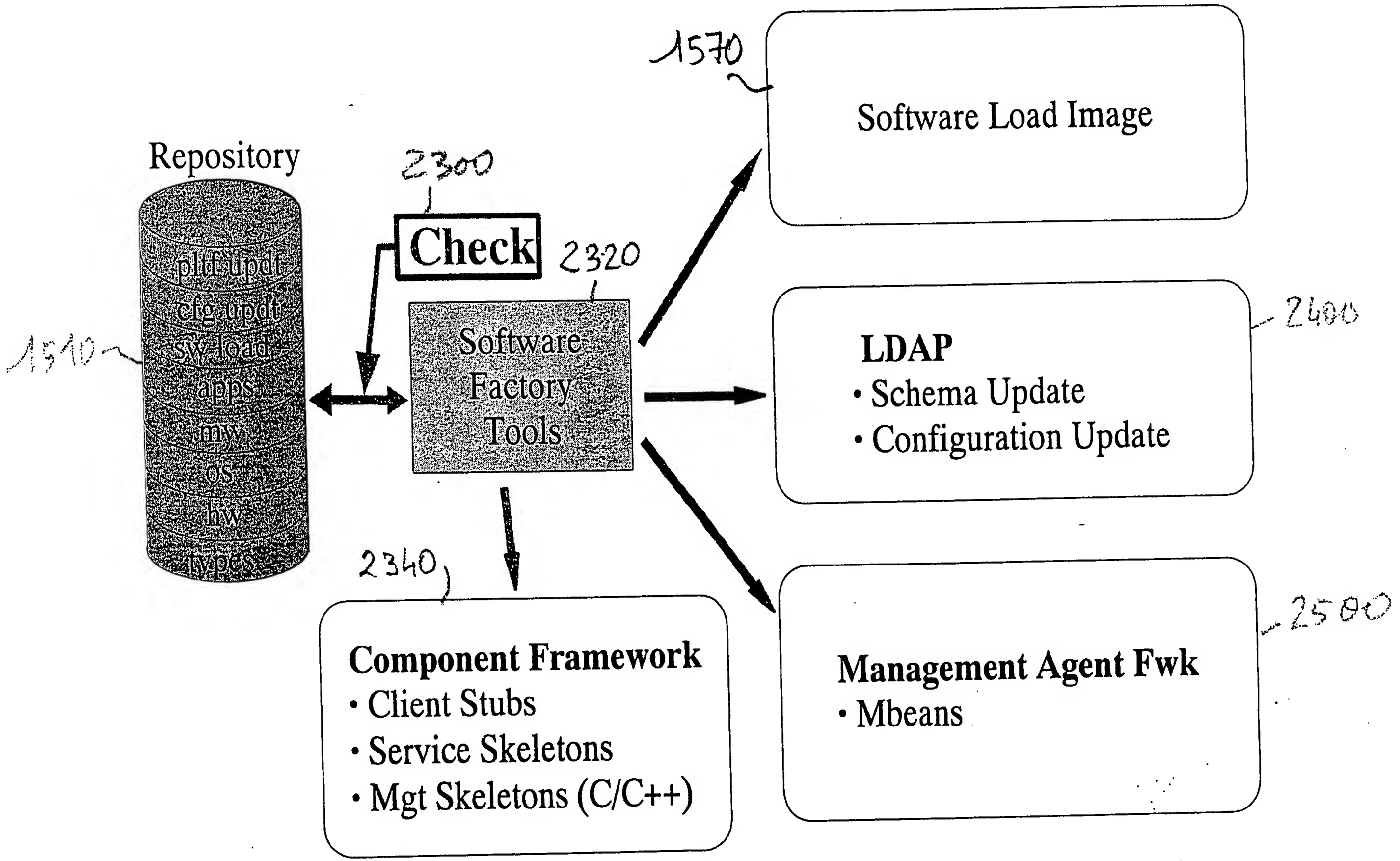

Repository
pltf updt
cfg updt
sw load
apps
mw
os
hw
TYPES
1510
2300
Check
2320
Software Factory Tools
1570
Software Load Image
2400
LDAP
• Schema Update
• Configuration Update
2340
Component Framework
• Client Stubs
• Service Skeletons
• Mgt Skeletons (C/C++)
2500
Management Agent Fwk
• Mbeans

FIG. 10

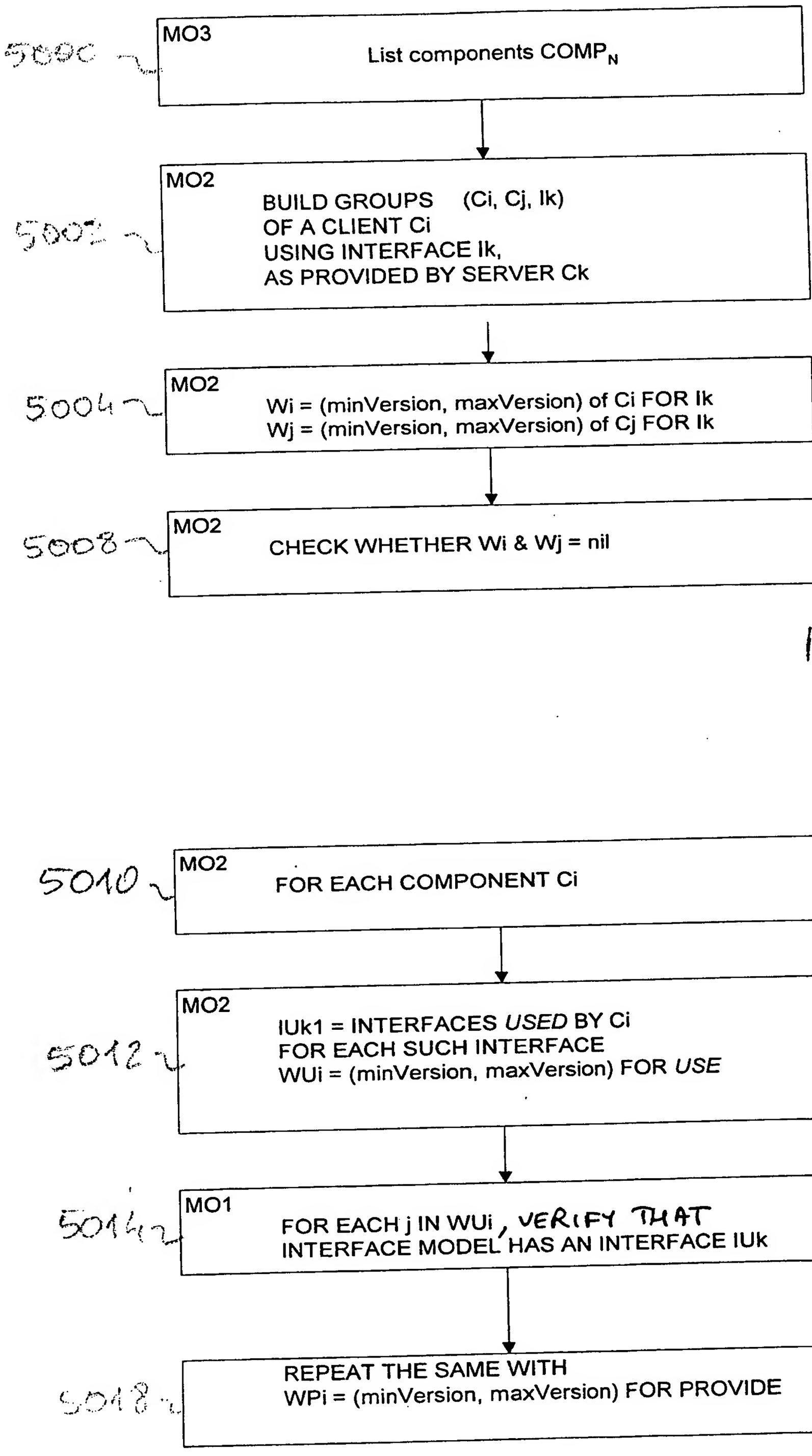

5000
MO3
List components $COMP_N$
5002
MO2
BUILD GROUPS (Ci, Cj, Ik)
OF A CLIENT Ci
USING INTERFACE Ik,
AS PROVIDED BY SERVER Ck
5004
MO2
Wi = (minVersion, maxVersion) of Ci FOR Ik
Wj = (minVersion, maxVersion) of Cj FOR Ik
5008
MO2
CHECK WHETHER Wi & Wj = nil
5010
MO2
FOR EACH COMPONENT Ci
5012
MO2
IUk1 = INTERFACES *USED* BY Ci
FOR EACH SUCH INTERFACE
WUi = (minVersion, maxVersion) FOR *USE*
5014
MO1
FOR EACH j IN WUi, VERIFY THAT
INTERFACE MODEL HAS AN INTERFACE IUk
5018
REPEAT THE SAME WITH
WPi = (minVersion, maxVersion) FOR PROVIDE

FIG 12

FIG 11

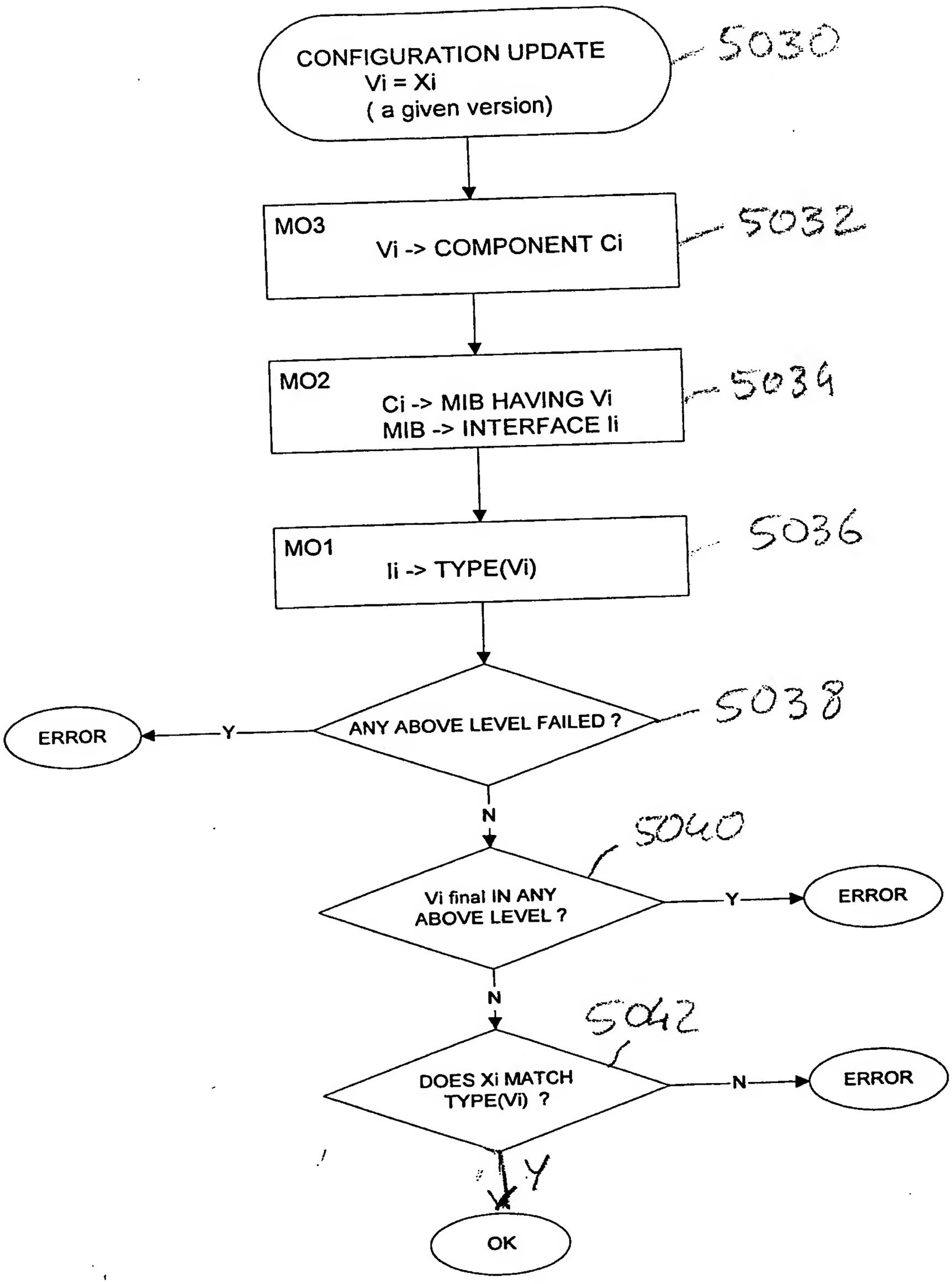

CONFIGURATION UPDATE
Vi = Xi
(a given version)
5030
MO3
Vi -> COMPONENT Ci
5032
MO2
Ci -> MIB HAVING Vi
MIB -> INTERFACE Ii
5034
MO1
Ii -> TYPE(Vi)
5036
ANY ABOVE LEVEL FAILED ?
5038
Y
ERROR
N
Vi final IN ANY ABOVE LEVEL ?
5040
Y
ERROR
N
DOES Xi MATCH TYPE(Vi) ?
5042
N
ERROR
Y
OK

FIG 13

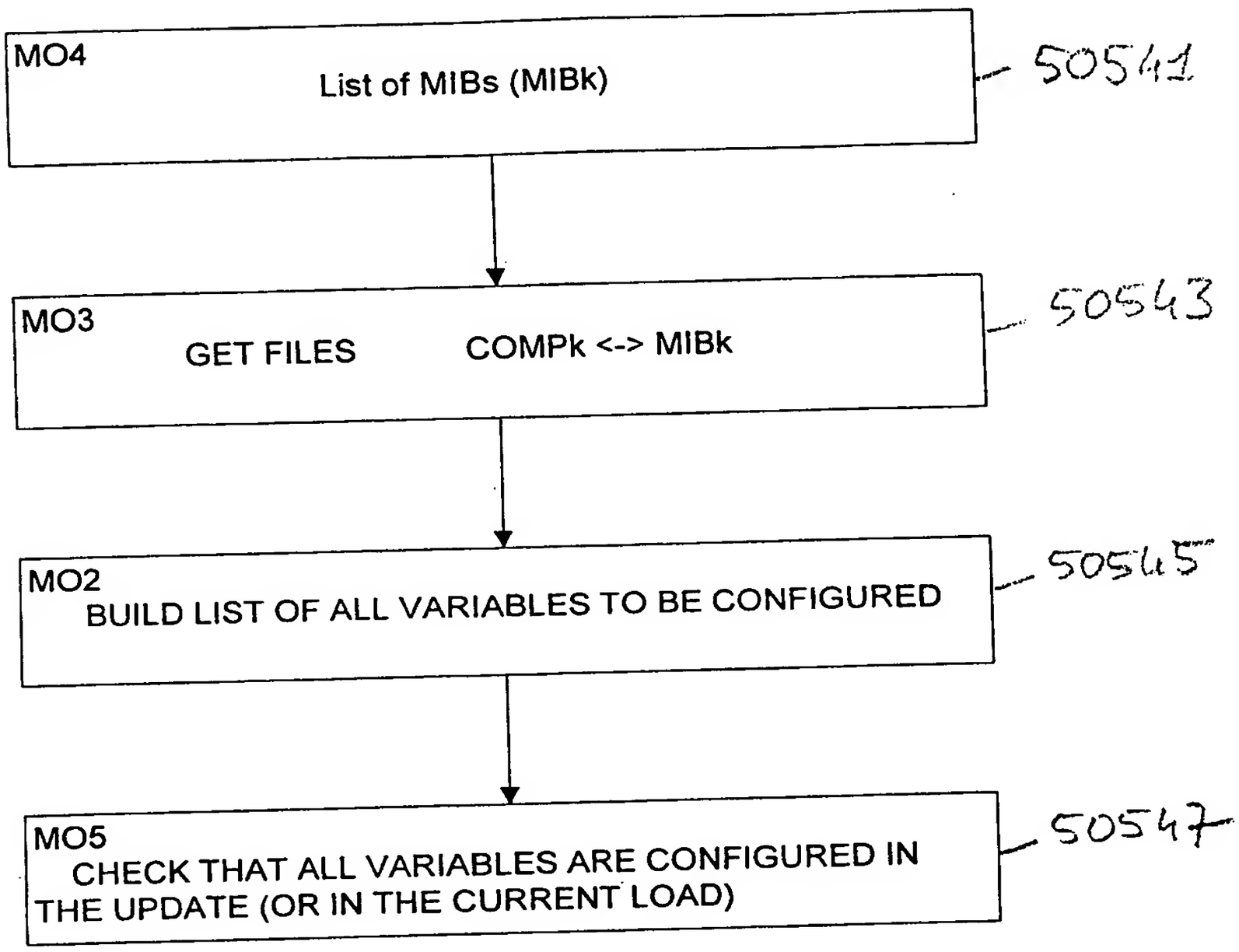

MO4
List of MIBs (MIBk)
50541
MO3
GET FILES
COMPk <-> MIBk
50543
MO2
BUILD LIST OF ALL VARIABLES TO BE CONFIGURED
50545
MO5
CHECK THAT ALL VARIABLES ARE CONFIGURED IN THE UPDATE (OR IN THE CURRENT LOAD)
50547

FIG. 16

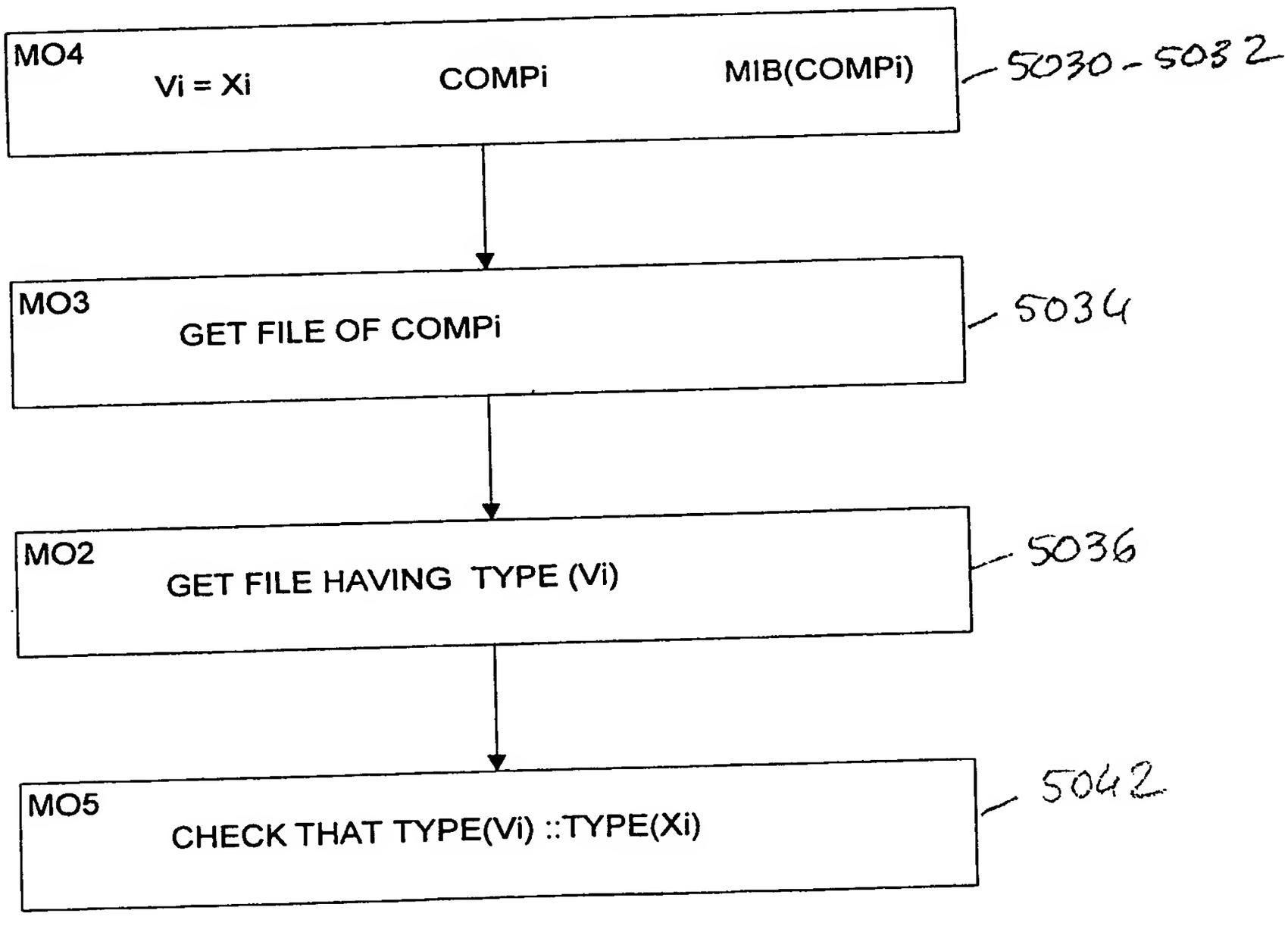

MO4
Vi = Xi
COMPi
MIB(COMPi)
5030-5032
MO3
GET FILE OF COMPi
5034
MO2
GET FILE HAVING TYPE (Vi)
5036
MO5
CHECK THAT TYPE(Vi) ::TYPE(Xi)
5042

FIG 14

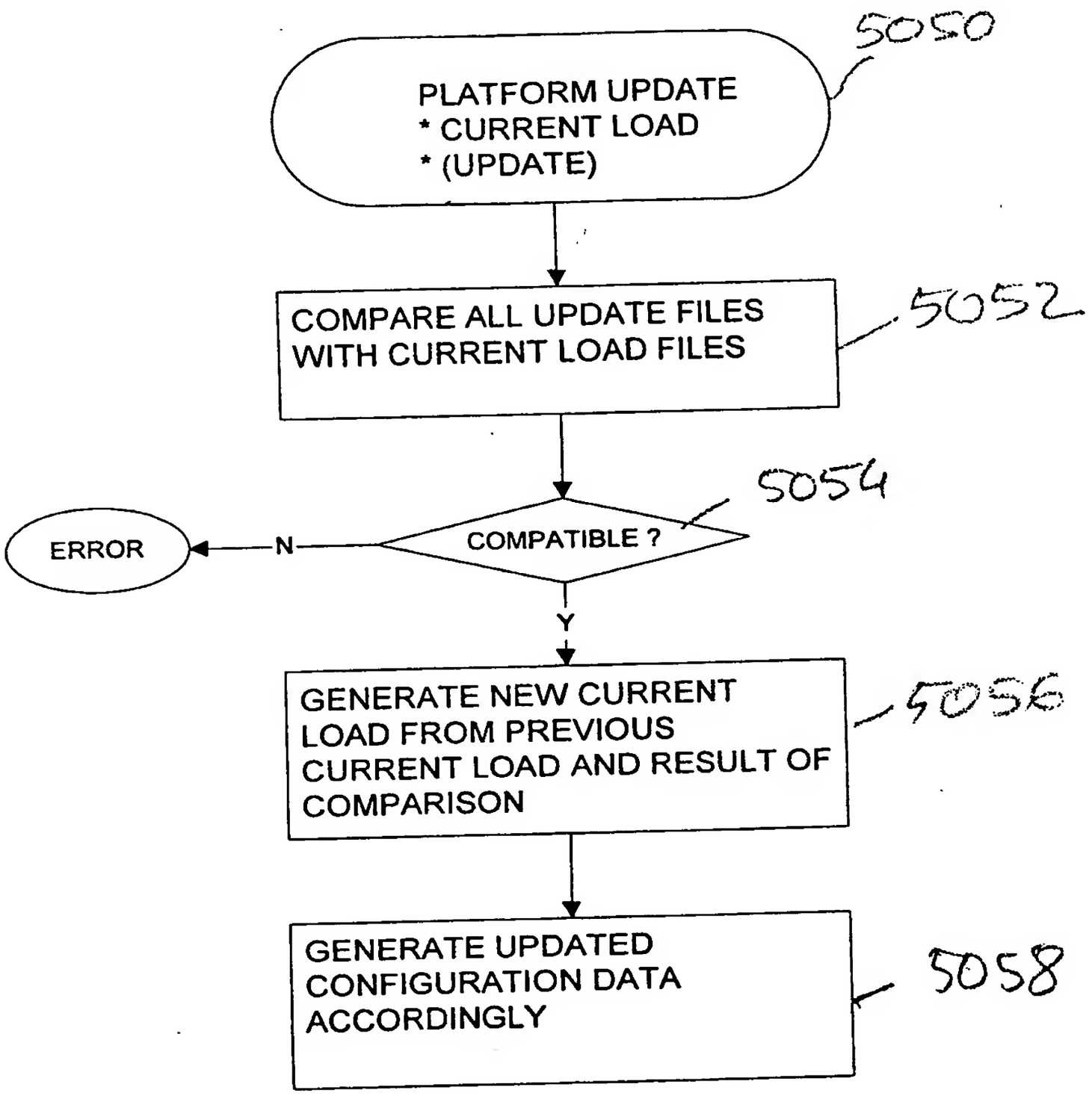

PLATFORM UPDATE
* CURRENT LOAD
* (UPDATE)
5050
COMPARE ALL UPDATE FILES WITH CURRENT LOAD FILES
5052
COMPATIBLE ?
5054
N
ERROR
Y
GENERATE NEW CURRENT LOAD FROM PREVIOUS CURRENT LOAD AND RESULT OF COMPARISON
5056
GENERATE UPDATED CONFIGURATION DATA ACCORDINGLY
5058

FIG 15

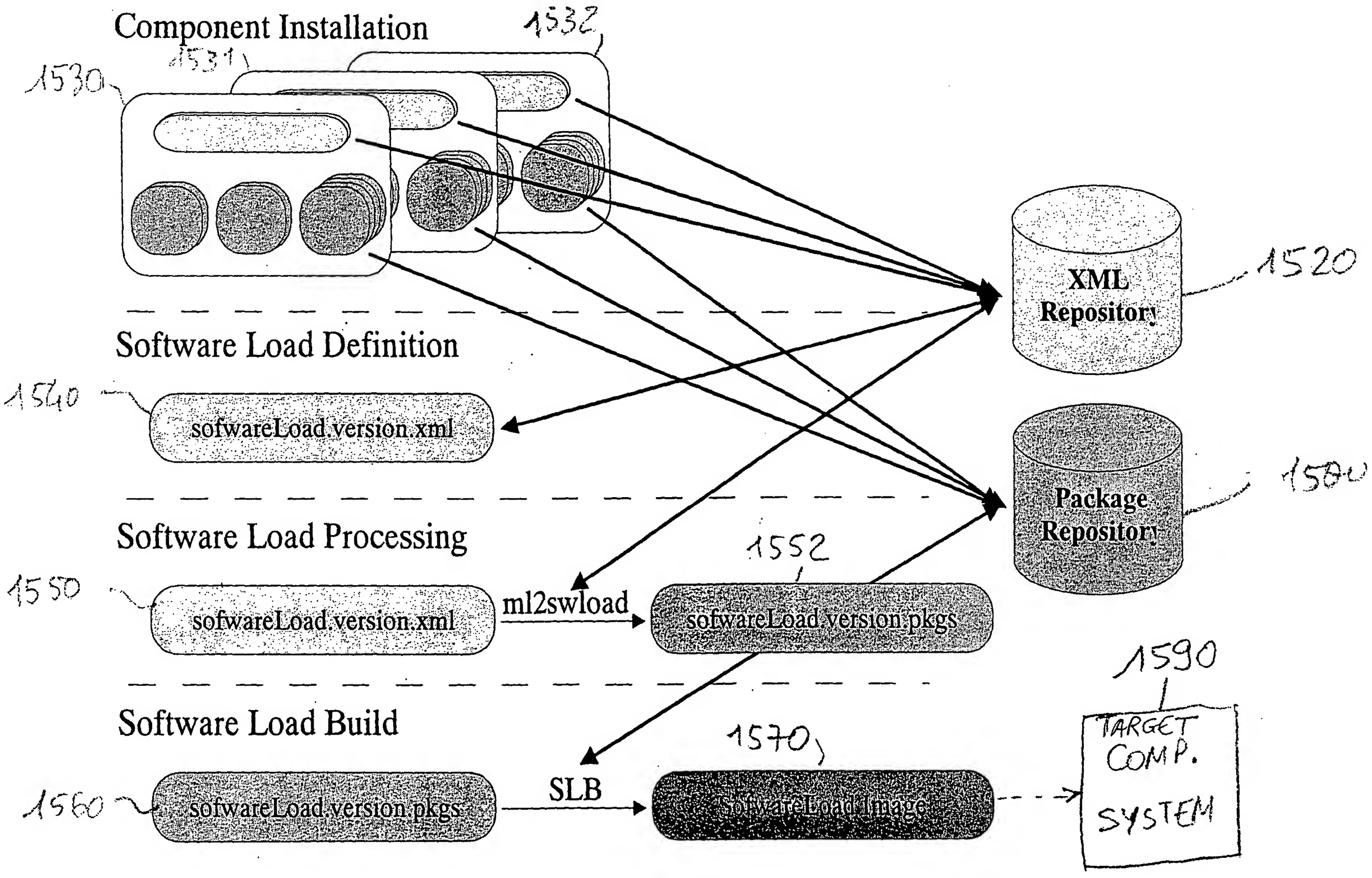

Component Installation
1532
1531
1530
XML Repository
1520
Software Load Definition
1540
sofwareLoad.version.xml
Package Repository
1580
Software Load Processing
1552
1550
sofwareLoad.version.xml
ml2swload
sofwareLoad.version.pkgs
1590
Software Load Build
1570
TARGET COMP. SYSTEM
1560
sofwareLoad.version.pkgs
SLB
SoftwareLoad Image

FIG. 17

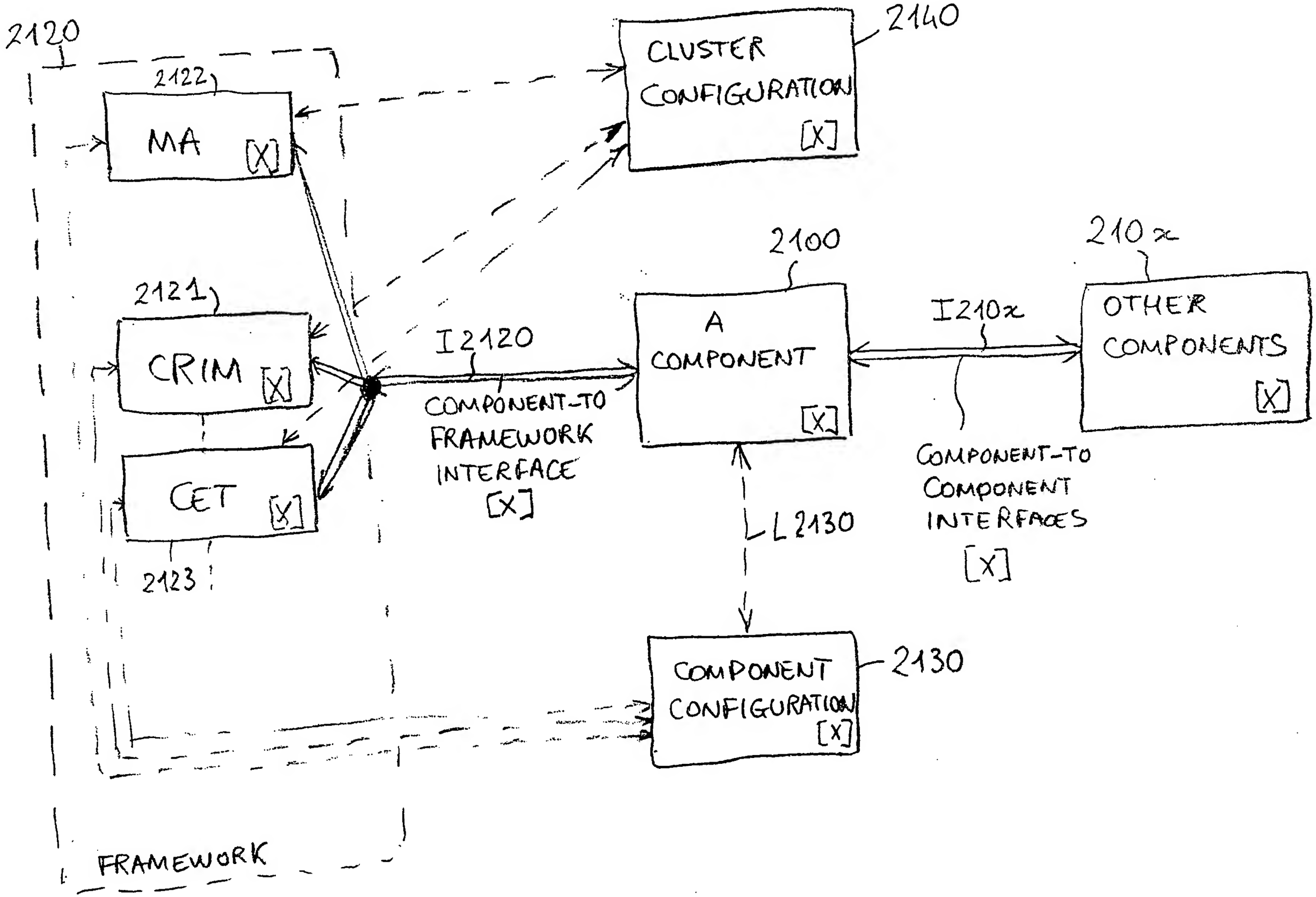

2120
2122
MA [X]
2121
CRIM [X]
CET [X]
2123
FRAMEWORK
CLUSTER CONFIGURATION [X]
2140
I2120
COMPONENT-TO FRAMEWORK INTERFACE [X]
2100
A COMPONENT [X]
L2130
COMPONENT CONFIGURATION [X]
2130
I210x
210x
OTHER COMPONENTS [X]
COMPONENT-TO COMPONENT INTERFACES [X]

FIG 18

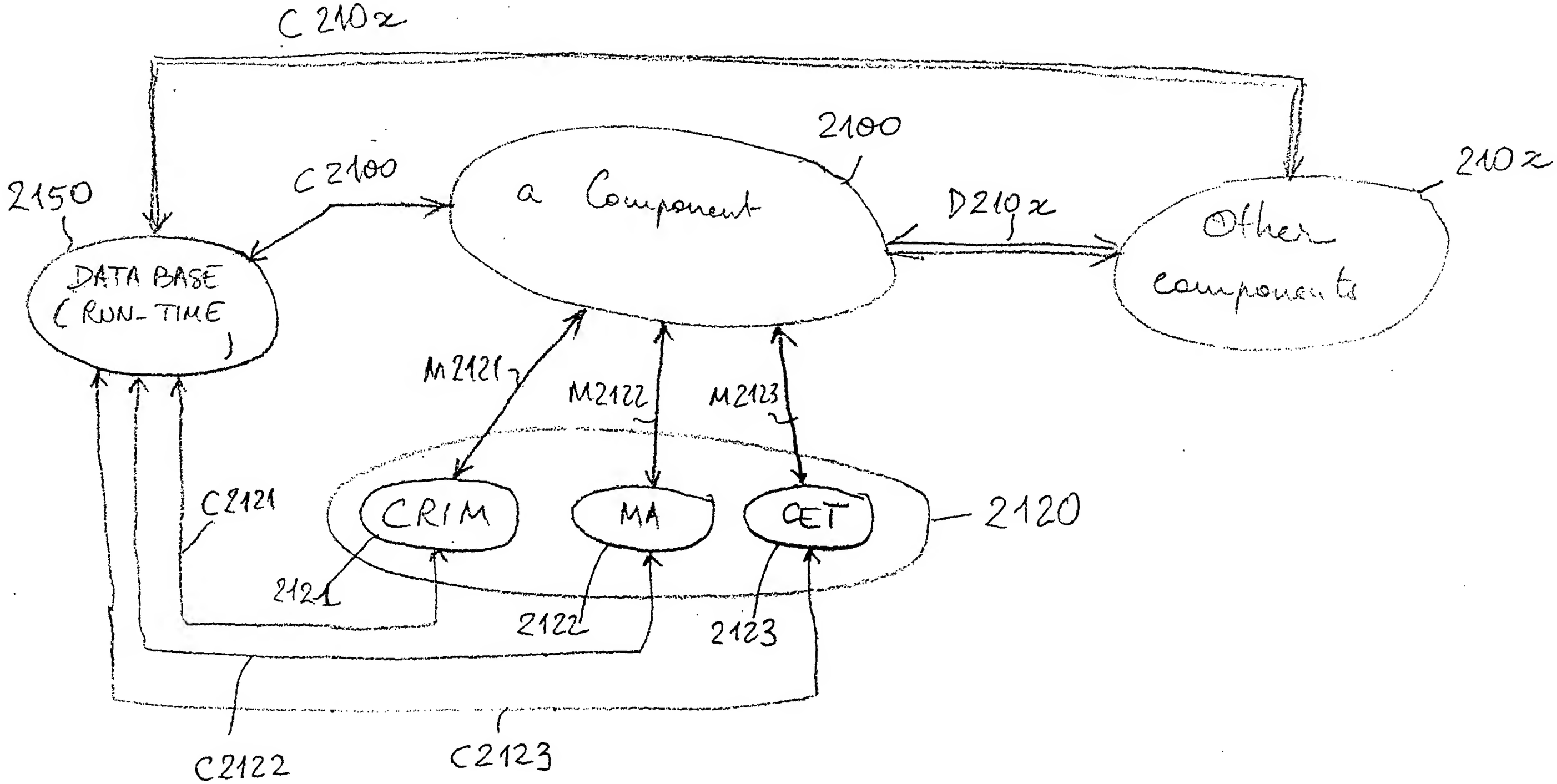
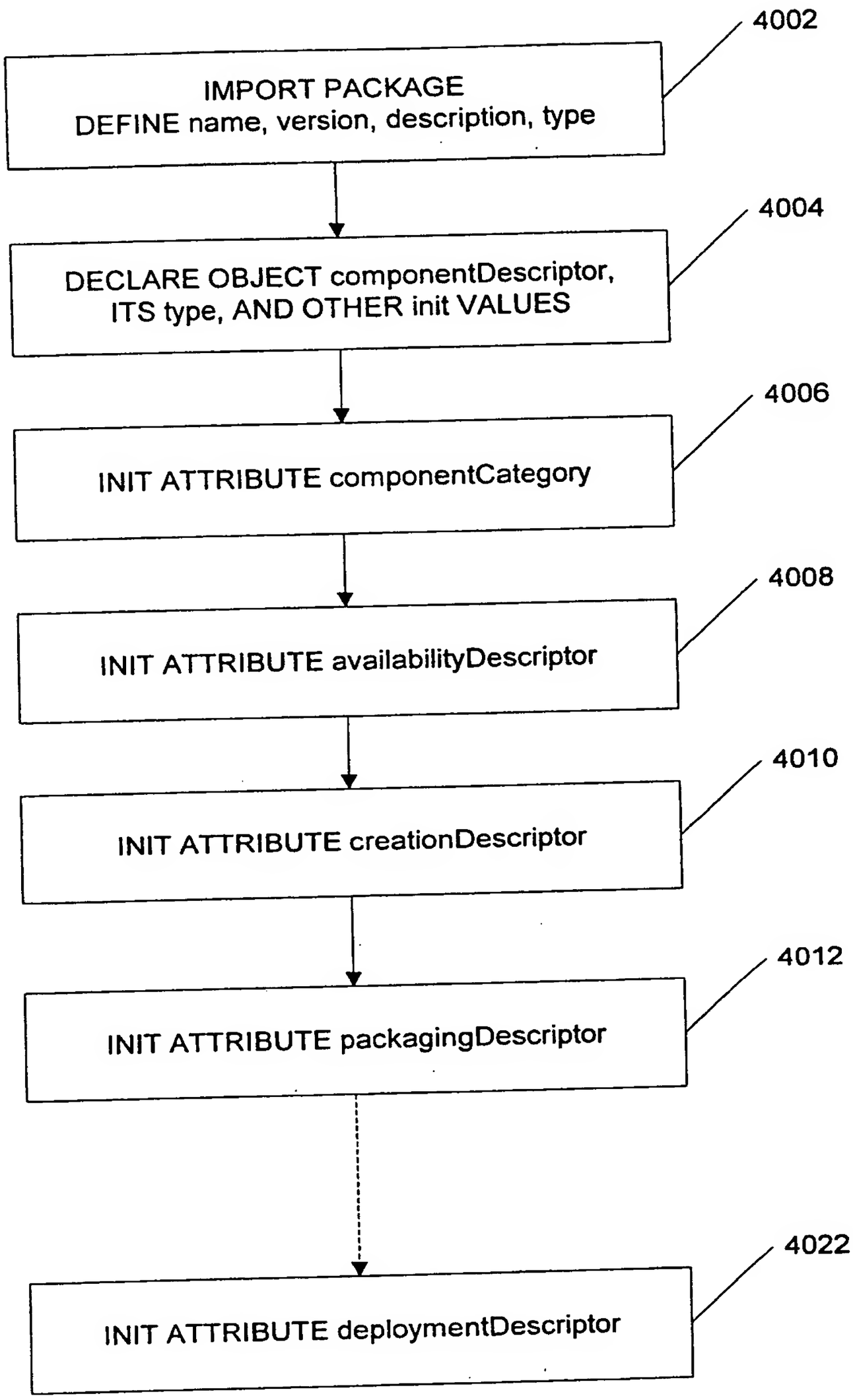

C 210x
2100
a Component
C 2100
2150
DATA BASE
(RUN-TIME
)
D 210x
210x
Other
components
M 2121
M 2122
M 2123
C2121
CRIM
MA
CET
2120
2121
2122
2123
C2122
C2123

FIG 19


4002
IMPORT PACKAGE
DEFINE name, version, description, type
4004
DECLARE OBJECT componentDescriptor,
ITS type, AND OTHER init VALUES
4006
INIT ATTRIBUTE componentCategory
4008
INIT ATTRIBUTE availabilityDescriptor
4010
INIT ATTRIBUTE creationDescriptor
4012
INIT ATTRIBUTE packagingDescriptor
4022
INIT ATTRIBUTE deploymentDescriptor

20

FIGURE 20

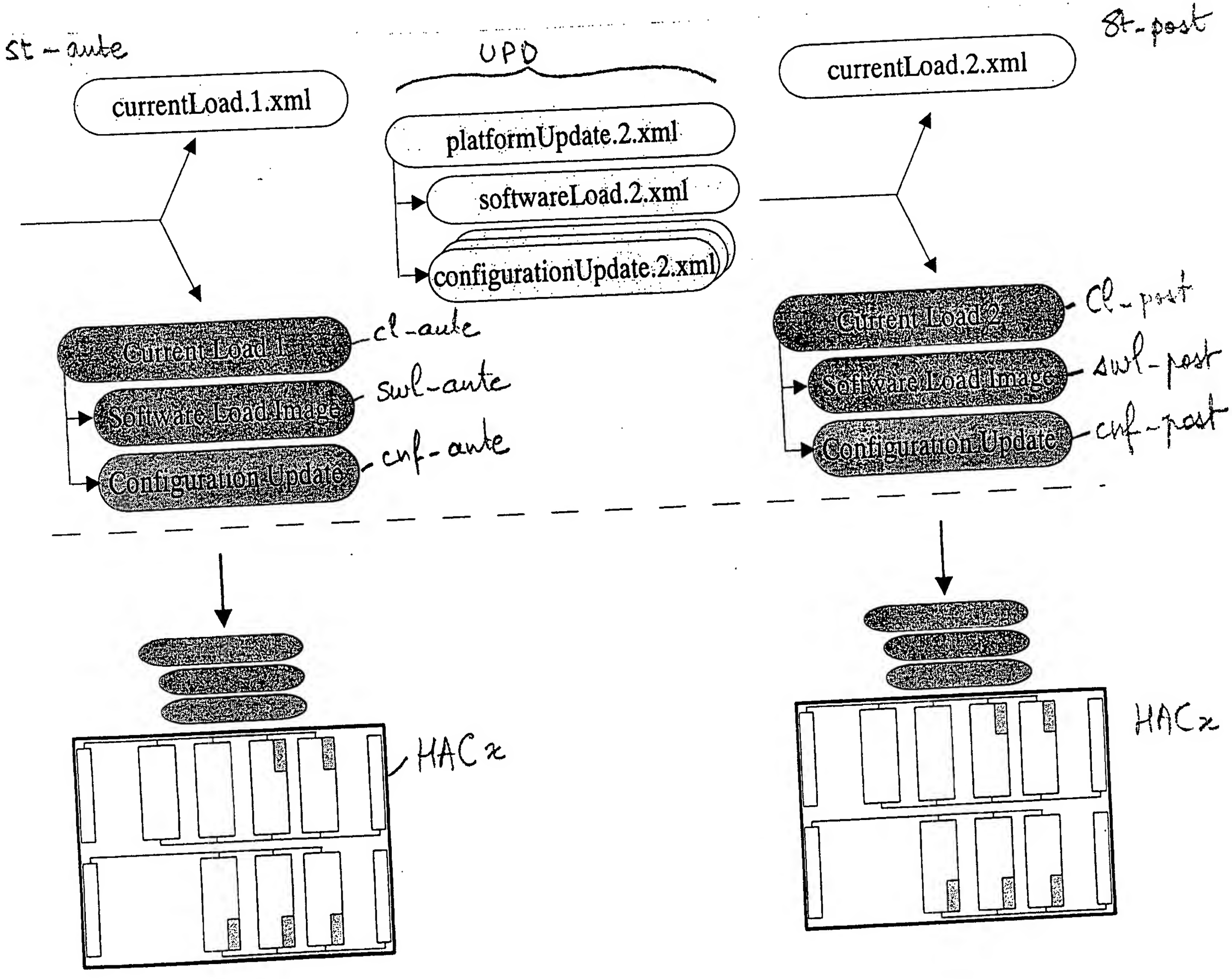

st-ante
currentLoad.1.xml
UPD
platformUpdate.2.xml
softwareLoad.2.xml
configurationUpdate.2.xml
st-post
currentLoad.2.xml
Current Load 1
cl-ante
Software Load Image
swl-ante
Configuration Update
cnf-ante
Current Load 2
cl-post
Software Load Image
swl-post
Configuration Update
cnf-post
HACx
HACx

FIG 21

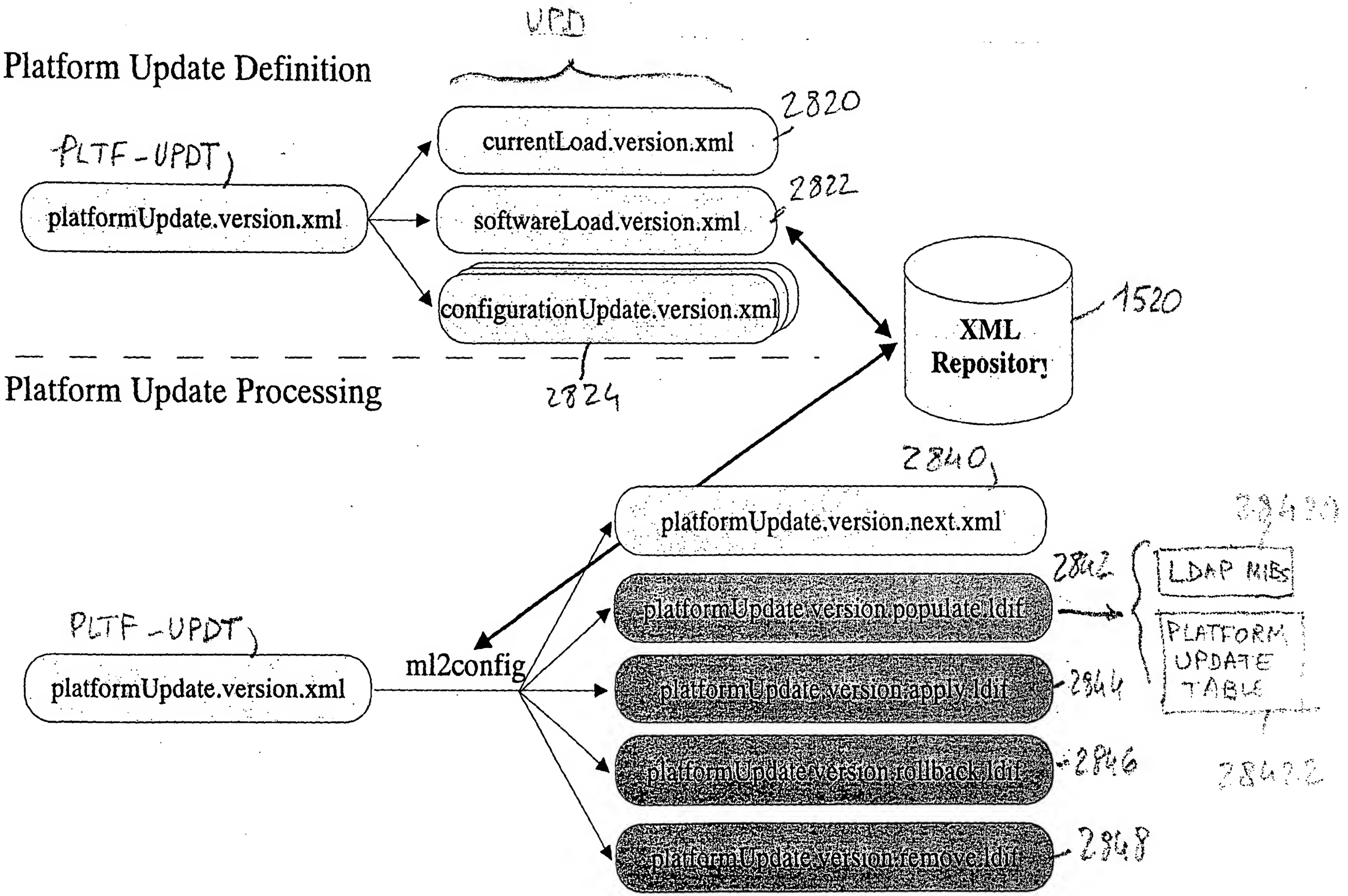

Platform Update Definition
UPD
PLTF-UPDT
platformUpdate.version.xml
currentLoad.version.xml
2820
softwareLoad.version.xml
2822
configurationUpdate.version.xml
2824
XML Repository
1520
Platform Update Processing
2840
platformUpdate.version.next.xml
PLTF-UPDT
platformUpdate.version.xml
ml2config
platformUpdate.version.populate.ldif
2842
LDAP MIBs
PLATFORM UPDATE TABLE
28422
28429
platformUpdate.version.apply.ldif
2844
platformUpdate.version.rollback.ldif
2846
platformUpdate.version.remove.ldif
2848

FIG 22

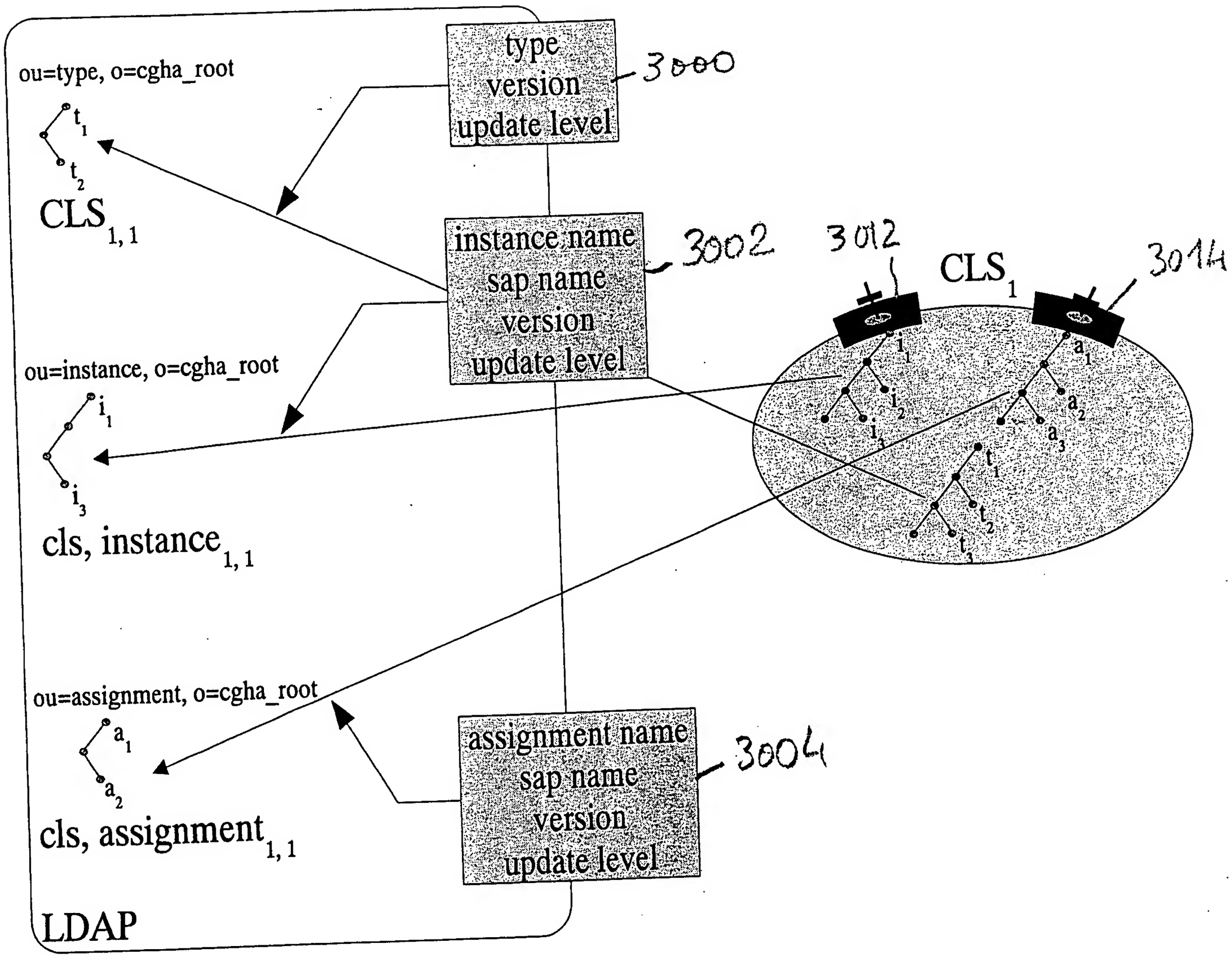

ou=type, o=cgha_root
t1
t2
CLS1, 1
type
version
update level
3000
instance name
sap name
version
update level
3002
3012
CLS1
3014
ou=instance, o=cgha_root
i1
i3
cls, instance1, 1
i1
i2
i3
a1
a2
a3
t1
t2
t3
ou=assignment, o=cgha_root
a1
a2
cls, assignment1, 1
assignment name
sap name
version
update level
3004
LDAP

FIG 23

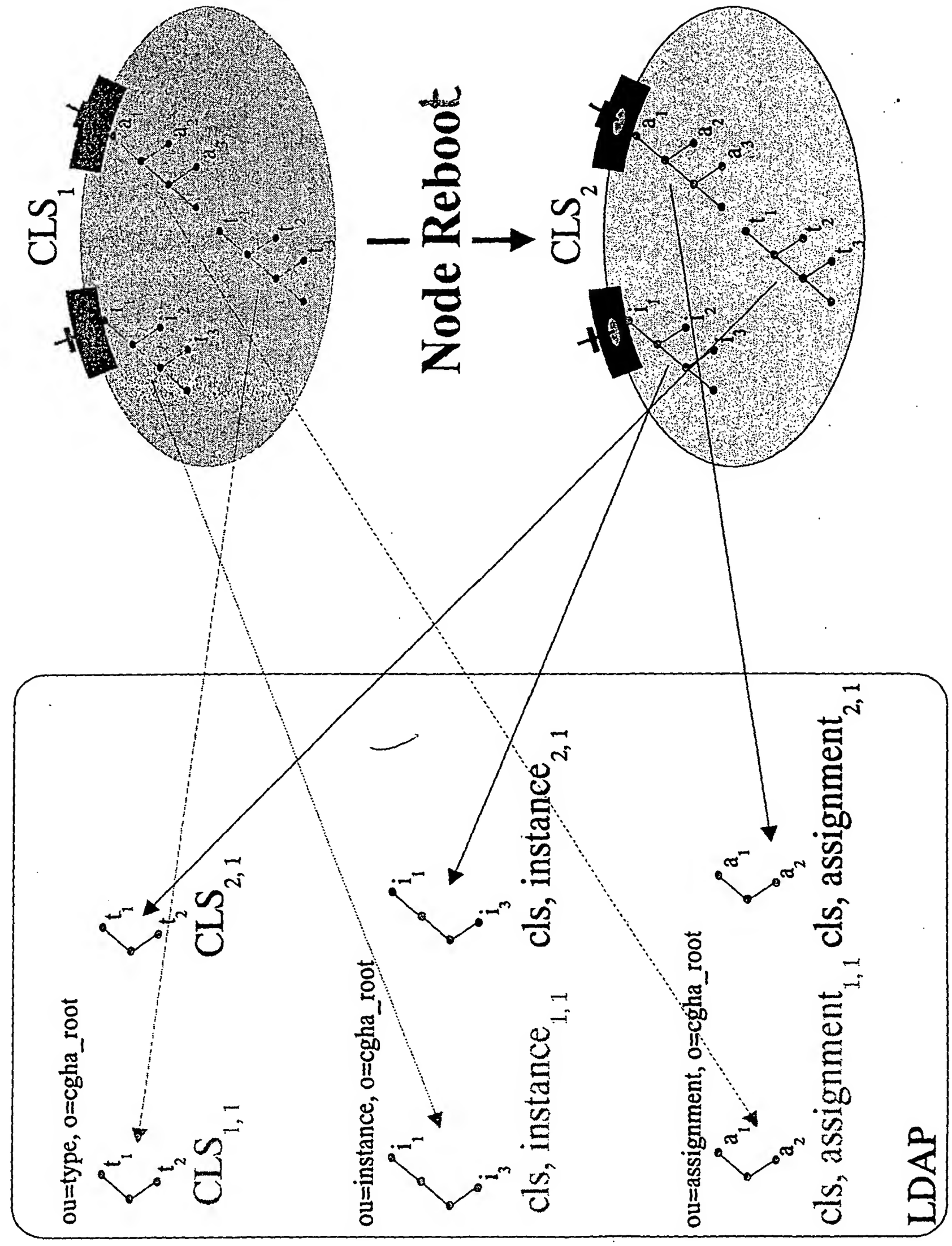

CLS1
CLS2
Node Reboot
ou=type, o=cgha_root
CLS1, 1
CLS2, 1
ou=instance, o=cgha_root
cls, instance1, 1
cls, instance2, 1
ou=assignment, o=cgha_root
cls, assigment1, 1
cls, assigment2, 1
LDAP

FIG. 24

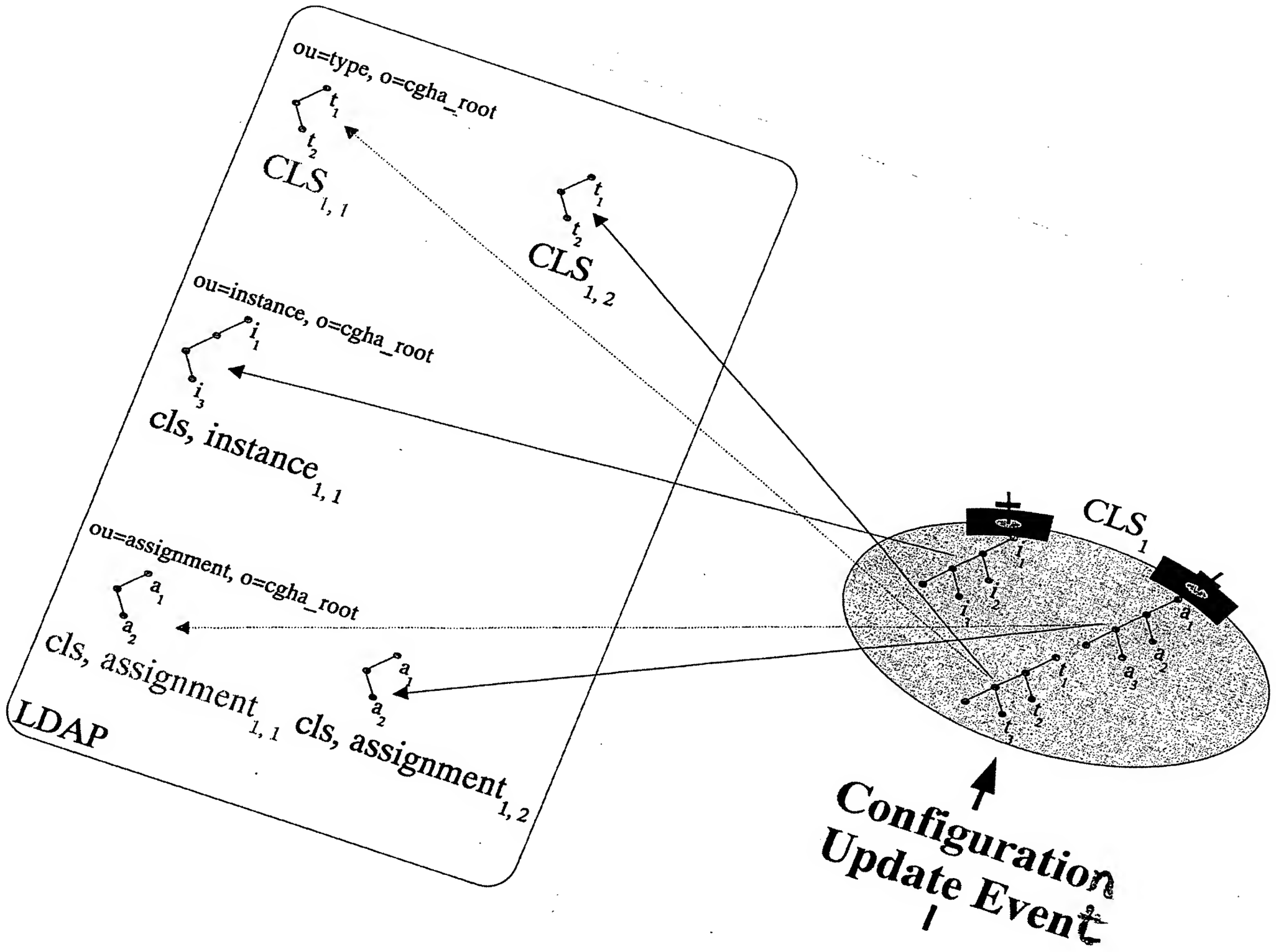

ou=type, o=cgha_root
t_1
t_2
$CLS_{1,1}$
t_1
t_2
$CLS_{1,2}$
ou=instance, o=cgha_root
i_1
i_3
cls, instance $_{1,1}$
ou=assignment, o=cgha_root
a_1
a_2
a_1
a_2
cls, assignment $_{1,1}$
cls, assignment $_{1,2}$
LDAP
CLS_1
i_1
i_2
i_3
a_1
a_2
a_3
t_1
t_2
t_3
Configuration Update Event
l

FIG. 25

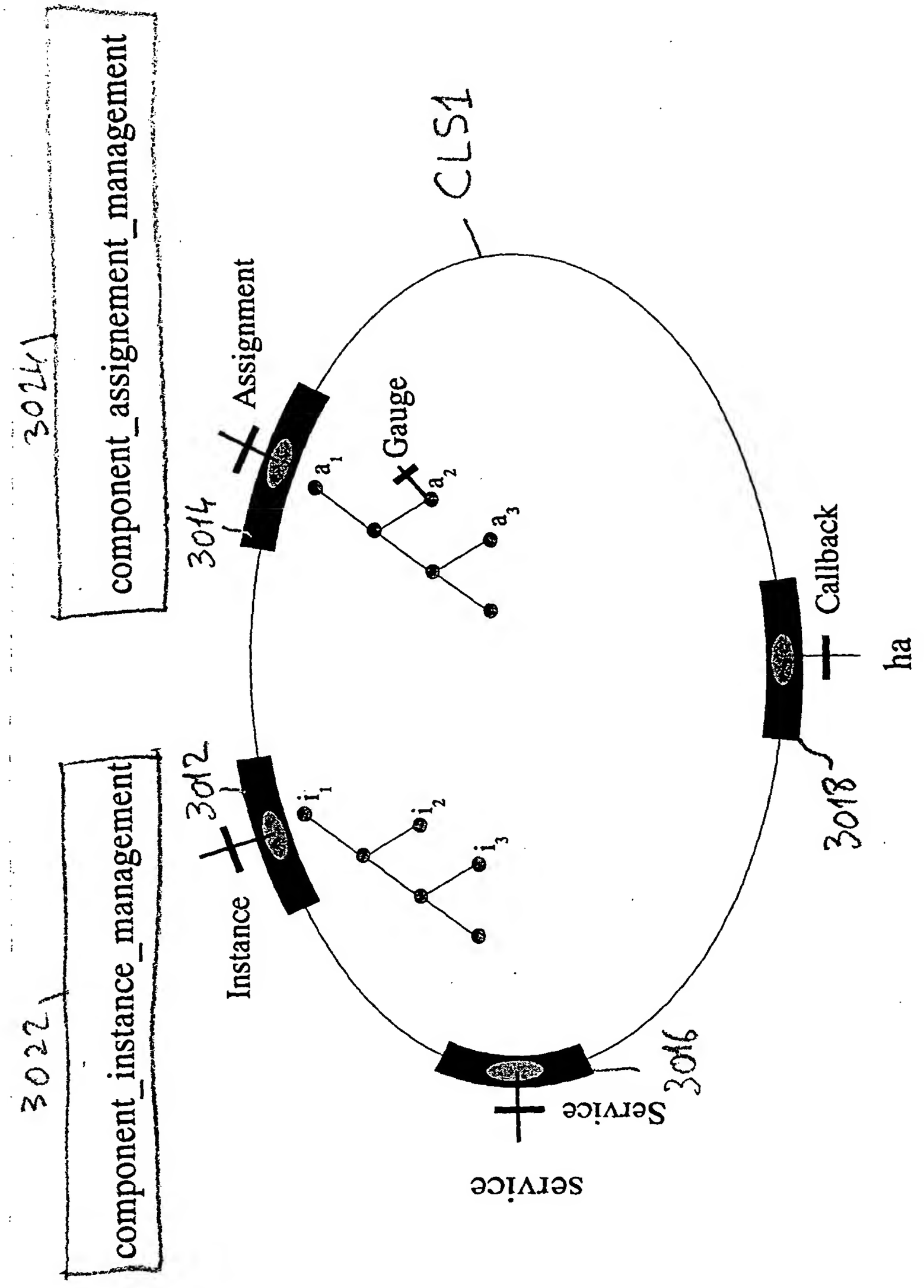

component_instance_management
3022
component_assignement_management
3024
Instance
3012
Assignment
3014
Gauge
Callback
3018
Service
3016
service
CLS1
ha
i_1
i_2
i_3
a_1
a_2
a_3

FIG 26

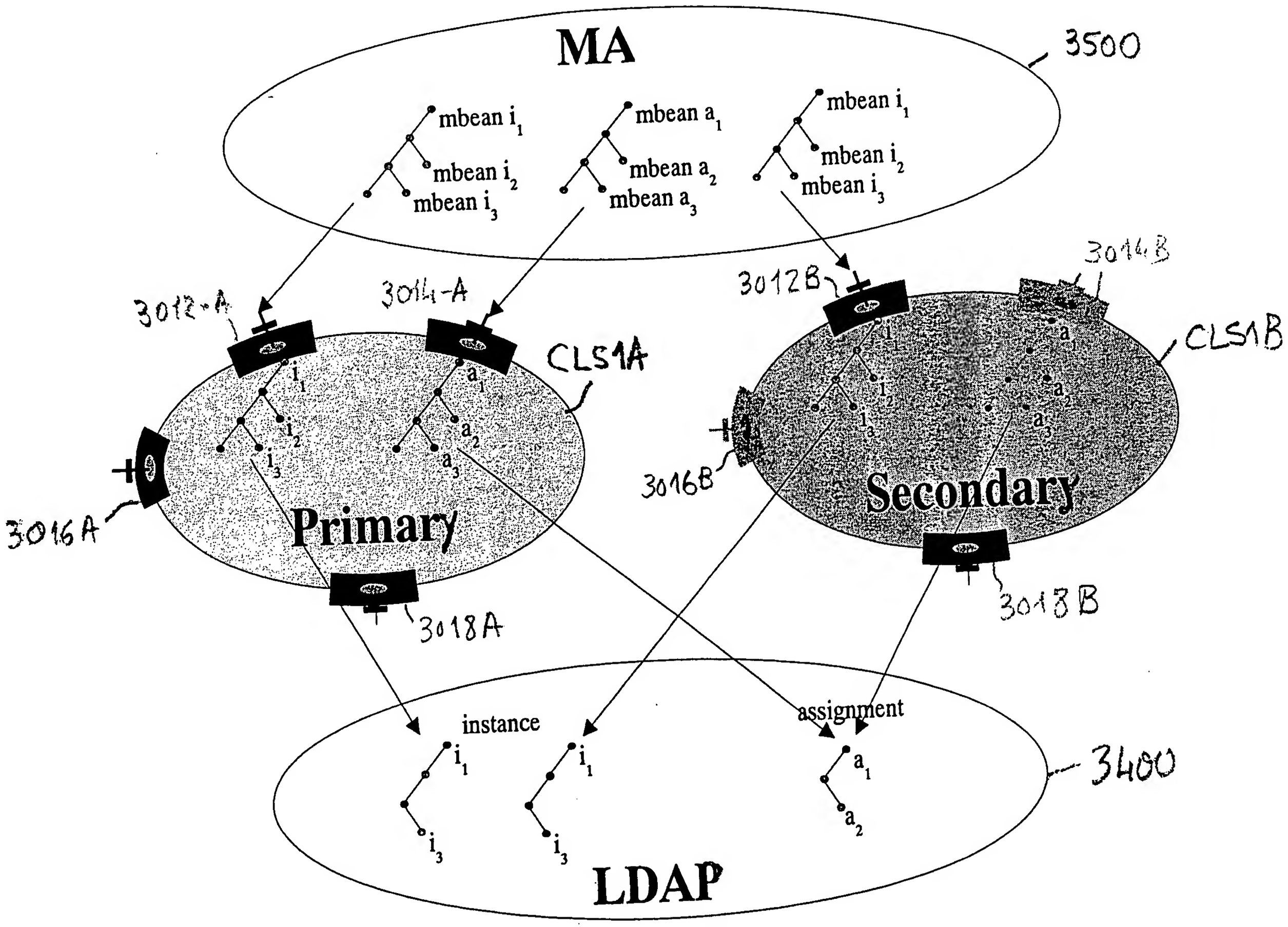

MA
3500
mbean i_1
mbean i_2
mbean i_3
mbean a_1
mbean a_2
mbean a_3
mbean i_1
mbean i_2
mbean i_3
3012-A
3014-A
CLS1A
Primary
3016A
3018A
3012B
3014B
CLS1B
Secondary
3016B
3013B
instance
assignment
3400
LDAP

FIG. 27